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# Journal of the Society of Arts.

FRIDAY, OCTOBER 31, 1856.

## MEETING OF COUNCIL.

OCTOBER 29, 1856.

On the recommendation of the Board of Examiners, the Council have passed the following minute with respect to those Institutions which may claim to avail themselves of the Society's Examinations:—

"I. That the Mechanics' Institutions, Societies, Trade and other Schools, in Union with the Society of Arts, in London and in the country, be invited to form themselves into groups, with a view to the establishment of Local Boards of Examiners.

"II. That the Managers shall endeavour to obtain the assistance of qualified persons to act as Examiners.

"III. That the Local Boards when so chosen shall elect a Chairman and Honorary Secretary, who shall place themselves in communication with the Society's Board in London, so as to secure unity of action and uniformity of procedure.

"IV. That the Local Boards shall hold their Examinations in the month of March.

"V. That as soon after as may be, the Local Boards shall report to the Society's Board the results of the Examinations, the numbers of candidates who are to be sent up to the Society's Examinations in June, and the subjects in which such candidates are to be examined.

"VI. That in the month of July the Local Boards of Examiners shall call public meetings in their respective localities, and deliver, in the presence of their friends, neighbours, and fellow-townsmen, to the successful Candidates, the Society's Certificates and Awards of Prizes, previously sent down from the Society of Arts to be so distributed."

## THE EXAMINATION HELD IN JUNE, 1856.

The Dean of Hereford has presented to each of the candidates who obtained a Certificate at the Examination held in June last, a copy of a work edited by himself, entitled, "Lessons on the Phenomena of Industrial Life."

## SOULAGE COLLECTION.

It having been represented to the Council, that Mons. Soulage, of Toulouse, was possessed of a very valuable and extensive collection of mediæval furniture and objects of *vertù* illustrative of art in Italy in the middle ages, and that he was prepared to sell it in one lot for eleven thousand pounds, and a very favourable report in reference to the collection having been made by Mr. John Webb, extracts of which are given below; the Council were of opinion that it was very desirable that the collection should be secured for the benefit of art in England, and they have, therefore, joined with a number of individuals in entering into a guarantee fund to enable the purchase to be made. The funds for the purchase have been borrowed on this guarantee, and the purchase has been made. The collection has arrived in England, and will very shortly be publicly exhibited, and public opinion taken on its merits, previously to the government being asked to purchase it for the nation. If the government decline to purchase the collection, it will be sold in the manner most advantageous for the interest of the guarantees. In the event of any loss, which there is no reason to anticipate, the guarantees will only be liable

for their share in proportion to the amounts for which they have given their names. The following is a list of the names of parties who have joined in the guarantee, and the amounts for which they deem themselves responsible.

E. Marjoribanks (Messrs. Coutts) ... ..	£1000
The Earl Granville, 16, Bruton-street ... ..	500
The Lord Ashburton, Bath-house, Piccadilly ... ..	1000
H. Minton, of Stoke ... ..	1000
Edward Wood, of Burslem ... ..	1000
Robert Napier, of Glasgow ... ..	500
W. Maskell, 9, Victoria-square, Clifton ... ..	500
M. Uzielli, Hanover Lodge, Regent's-park ... ..	1000
Philip Miles, of Bristol ... ..	100
Dr. Lyon Playfair, C.B. ... ..	300
Richard Redgrave, R.A. ... ..	200
Henry Cole, C.B. ... ..	300
J. Mayer, Liverpool ... ..	100
H. T. Hope, Deepdene, Dorking ... ..	1000
J. C. Robinson (Marlborough-house) ... ..	100
F. Fowke, Capt., R.E. ... ..	200
W. Ewart, M.P., 6, Cambridge-square, Hyde-park ... ..	100
R. Burchett (Marlborough-house) ... ..	100
H. Farrer, F.S.A., 15, Albert-road, Regent's-park ... ..	500
C. Sackville Bale, 71, Cambridge-terrace, Hyde-park ... ..	100
W. Chaffers, F.S.A., 14, Grafton-street, Bond-street ... ..	250
A. Barker, 103, Piccadilly ... ..	500
Richard Fisher, 35, Queen-square, Bloomsbury ... ..	100
J. Swaby, 13, Torriano-terrace, Kentish-town ... ..	200
John Webb, 11, Grafton-street, Bond-street ... ..	500
Holland and Sons, 23, Mount-street ... ..	500
Artists, Carvers, and Workmen in the employ of Messrs. } Holland and Sons ... ..	100
Alfred Lapworth and Co., 22, Old Bond-street ... ..	200
John Jackson, 49, Rathbone-place ... ..	300
W. B. Simpson, 456, Strand ... ..	100
George Trollope and Sons, Parliament-street ... ..	250
Jackson and Graham, 38, Oxford-street ... ..	500
John Crace, 14, Wigmore-street ... ..	300
J. Sheepshanks, Rutland-gate ... ..	200
G. R. Elkington, Birmingham ... ..	300
J. Jobson Smith, Sheffield ... ..	100
Thomas De la Rue, F.R.S. } Bunhill Row ... ..	500
Warren De la Rue, F.R.S. } ... ..	500
Gillow and Co., 176, Oxford-street ... ..	200
R. Phillips, 23, Cockspur-street ... ..	100
S. C. Hall, 21, Ashley-place, Victoria-street ... ..	500
Dudley C. Marjoribanks, M.P., 29, Upper Brook-street ... ..	100
Sir Francis E. Scott, Bart., Great Barr Hall, Birmingham ... ..	100
George Godwin, F.R.S., 24, Alexander-square, Old Brompton ... ..	200
Henry G. Bohn, Twickenham ... ..	100
G. Gilbert Scott, 20, Spring-gardens ... ..	250
George J. Morant, 91, Bond-street ... ..	500
I. K. Brunel, F.R.S., 18, Duke-street, Westminster ... ..	500
Sidney Smirke, A.R.A., 79, Grosvenor-street ... ..	500
Johnstone and Jeanes, 67, New Bond-street ... ..	500
His Grace the Duke of Hamilton and Brandon, Arlington-st. ... ..	300
Robert S. Holford, Dorchester-house, Park-lane ... ..	250
Christie and Manson, 8, King-street, St. James's ... ..	200
John Dunn Gardner, 113, Eaton-square ... ..	100
Joseph Clarke, 13, Stratford-place ... ..	100
Owen Jones, 9, Argyll-place ... ..	100
R. J. Spiers, 14, St. Giles's-street, Oxford ... ..	100
Hanson and Wright, 16, John-street, Oxford-street ... ..	100
Hunt and Roskell, 156, New Bond-street ... ..	300
Council of the Society of Arts, per P. Le Neve Foster, } Secretary ... ..	500
J. J. Mechi, Tiptree-hall, Kelvedon ... ..	100
Joseph Rodgers and Sons, Sheffield ... ..	100
James Dixon and Sons, Sheffield ... ..	100
Mappin, Brothers, Sheffield ... ..	100
Sir Henry Meux, Bart., M.P., 41, Upper Brook-street ... ..	500
Sir John Marjoribanks, Bart., Lees, near Coldstream ... ..	200
Thomas Miller Whitehead, 8, Duke-street, St. James's ... ..	100
Titus Salt, Saltaire, Bradford ... ..	1000
J. W. Fraser, 8A, Kensington-palace-gardens ... ..	200
C. Drury E. Fortnum, Stanmore-hill, Middlesex ... ..	200
W. Wilson Saunders, Wandsworth ... ..	100
Edward Chapman, 193, Piccadilly ... ..	100
£23,300	

## EXTRACTS FROM MR. WEBB'S REPORT.

"The collection of mediæval furniture, bronzes, &c. &c., belonging to M. Soulage, at Toulouse, is of very considerable importance and magnitude, being composed of 865 various objects. It has the great interest attached to it of having been got together with a view to illustrate the domestic usages of the middle ages. The principal pieces are of a first-rate character and importance, not only in point of quality as works of art, but also in many cases from having belonged to personages of historical note.

"I would specify the grand chimney piece, in fine stone, sculptured by the brothers Lombardi; the magnificent lantern, executed in carved wood for the palace of the Doge Gradenigo; the tall and matchless fire-dogs, in bronze; also the smaller ones, from the Brancaloni palace; the fine bronze candlesticks of exquisite workmanship; the magnificent knocker in bronze, by John of Bologna; the carved furniture, comprising chairs of the rarest and most interesting forms; the richly carved cabinets, armoires, buffets, tables, &c., &c. The Raffaele-ware is very conspicuous and important in this collection, comprising specimens of most of the celebrated potteries of Italy; amongst them will be found no less than 52 plates and dishes attributed to Maestro Georgio; one quite unique and of great value, representing the portrait of Perugino, after a drawing said to have been furnished by Raphael to the fabric at Urbino; also various interesting vases and cups of the same character, one of which is of the rarest beauty. The Limoges enamels, although not numerous, have amongst them two portraits of high value. The Italian medals, representing the celebrated personages of the renaissance, are replete with beauty and interest. Among the 'orfèvrerie' is a piece reputed to be from the design of Michael Angelo; besides many others equally interesting.

"The Palissy ware, though confined to a few specimens, boasts of a ewer or vase remarkable for its finish, beauty, and colour, and the like is not now to be met with. In every other section, indeed, there is something to mark a superior character to anything that can be obtained at the present moment.

"Taking, therefore, the quality of most of the objects, their great interest in bearing the arms, crests, and monograms of the various remarkable and great persons to whom they appertained, the collection possesses a consequence which I have no fear of overstating, especially when, as at present, the Continent of Europe is being traversed by amateurs, dealers, and others, all anxious to secure everything that has pretensions to art or history, offering very high prices (which are daily augmenting) as the only means of tempting the possessors to part with their specimens.

"I have based my valuation in a certain degree on present prices, because most high and tempting offers have already been made to M. Soulage for many of the objects; and, I believe, that if this collection were to be submitted to public competition, so great would be the desire to possess many or most of the articles, that many wealthy persons to whom it is well known would bid with a determination to purchase, and the product of the sale would arrive at a much higher point than might otherwise be anticipated, an event now of very frequent occurrence."

Here follows a detailed statement of the collection, with an estimate of its value, which Mr. Webb recapitulates as below:—

1. Richly carved furniture	£2,888	0	0
2. Bronzes	1,785	0	0
3. Orfèvrerie and fine metal work	351	0	0
4. Raffaele ware, plates, &c.	1,980	0	0
5. " vases, &c.	870	0	0
6. Palissy ware and other French faïence	439	0	0
7. Flemish pottery, &c.	40	0	0
8. Venetian glass and large chandelier	508	0	0
9. Various objects	148	0	0
10. Limoge enamels	673	0	0
11. Ivories, &c.	60	0	0
12. Lucca della Robbia ware	80	0	0
13. Sculpture in marble, stone, &c.	620	0	0
14. Medals	380	0	0
15. Stained glass	120	0	0
16. Pictures	560	0	0
17. Stuffs and embroideries	180	0	0
18. Addenda, various, as per letter	200	0	0

£11,782 0 0

"Having thoroughly gone through and estimated this collection, I beg to inform you, that I consider it in every way worthy of your consideration, and I can most confidently recommend the purchase of it for a public museum. I also venture to assert, that it is one of the very few opportunities that occur to possess a collection of mediæval art, and trust it will be considered too rare and valuable to be lost sight of. It remains for me to state, that M. Soulage offers the collection complete for the sum of £11,000."

## THE BRUSSELS ECONOMIC EXHIBITION.

REPORT, BY T. TWINING, JUN.

The Council are aware that, at the Philanthropic Conferences held at Paris, in July, 1855, a resolution was adopted recommending the formation, in various countries, of collections of articles of domestic and sanitary economy for the use of the working classes, according to the plan set forth in my memorandum, published under the auspices of the Society of Arts, and that a committee was appointed for organizing such a collection, as an annexe or supplement to the Universal Exhibition.

The *Galerie d'Economie Domestique*, thanks to imperial patronage, to the friendly assistance of M. Le Play, the Commissioner-General of the Great Exhibition, and to the indefatigable labours of the gentlemen who formed the Special Commission, was as complete and well-arranged as the limited time would allow; but it could, of course, only aspire to be a first step in a new line of practical benevolence.

M. Ducpetiaux, the eminent Belgian philanthropist, to whom the Paris Congress entrusted the care of organizing at Brussels the Congress of 1856, resolved to take a step further in the Economic movement, by inviting, in due time, the manufacturers of Belgium, and the other European countries, to send specimens of articles of every kind calculated to improve the physical and intellectual condition of the industrious classes, to an Exhibition to be held, from the 25th of August to the beginning of October, in the Conservatories of the Royal Botanic Gardens, at Brussels.

I am happy to say that the appeal, supported by the liberal patronage of the Belgian Government, was satisfactorily responded to by the Belgian producers, and that several other countries were well represented.

It had been supposed that English manufacturers, who had grown rather tired of Exhibitions, would not have taken an interest in this; but, thanks to the furtherance afforded by the Society of Arts, and to the zeal of the agents appointed for England, Messrs. Mertens, Trupel, and Co., I had the satisfaction of seeing a considerable number of English contributors. This is confirmed by the fact, that of the distribution of prizes which took place, with much ceremony, at the Hotel de Ville, on the 20th of September, under the presidency of H. R. H. the Duke of Brabant, no less than eleven medals were awarded to English exhibitors.

The spacious conservatories where the Exhibition was held were very well adapted for the arrangement and display of the articles, though they did not allow of their being placed strictly according to the classification adopted in the programme and in the Exhibition Catalogue, viz.,

- I. Plans, models, materials, and the various processes connected with building.
- II. Furniture and household utensils.
- III. Clothing and linen.
- IV. Food, and the various processes involved in its preparation.
- V. Tools and instruments for handicraft occupations, both industrial and agricultural.
- VI. Worship, physical and moral education, instruction, recreation.

On the right-hand side, upon entering the first and largest of the halls, was a very complete and attractive collection of educational appliances, got together under the special care of Messrs. Braun and Ducpetiaux, under whose joint names it was exhibited. Here I was pleased to see that the educational diagrams of Mr. Reynolds, of 174, Strand, made a very good appearance, and seemed to be duly prized.

A large portion of the hall was appropriated to linen and clothing, among which some articles of British produce were noticed for their extreme cheapness.

Near the centre was a very interesting collection of models, dressed in the baby-linen used by the poor in Belgium, France, England, Denmark, Germany, Austria, Switzerland, and Italy. Not far thence was a figure representing the ordinary costume of a Belgian workman. It comprised cap, shirt, trousers, woollen socks, nailed shoes, braces, neck-kerchief, waistcoat, and blouse. The whole to be had for the almost incredibly low amount of twelve francs, somewhat less than ten shillings. I should mention that throughout the Exhibition the price was appended to each article, and that a special officer was appointed to give to visitors every facility for purchasing the goods (to be delivered at the close of the Exhibition), or for giving orders to the respective manufacturers. As an instance of the beneficial tendency of thus enabling the members of the International Philanthropic Congress to take home to their respective countries the goods most suited to the local requirements, I may mention, that M. Viande Patry came to Brussels provided with a considerable sum, which he and his friends had collected for purchases intended to form the nucleus of an Economic Museum in Geneva. I myself experienced the greatest courtesy from M. Piret, the Director of Sales, who, having received special instructions from M. Ducpetiaux, undertook to get together, and to despatch to England, such things as I might require for the Economic Museum which I am forming in the name of the Council.

Many articles were presented as donations. Thus, Professor Guido Susani gave me a selection from the very complete and interesting collection of articles illustrating the apparel, utensils, occupations, and resources of the Lombardy peasantry, which had been formed with great care by the Milanese Society for the Encouragement of Arts and Manufactures, and which he had brought to Brussels at very considerable expense: I am told, no less than 1,200 francs.

The Second Hall, in the form of a lofty rotunda, was chiefly occupied by stoves, bedsteads, earthenware, and other articles of household furniture.

Here I noticed, and ordered for England, some cheap, and well-contrived cooking-stoves, and a hammock bed, used at one of the Belgian Reformatory Schools.

The Third Hall, which was a long narrow gallery, was nearly filled with a variety of tools used in the more common branches of industry, and with an assortment of agricultural implements. These collections would perhaps not be admitted into an economic exhibition in England; but it must be remembered, with regard to agricultural appliances in particular, that on the Continent land is much more subdivided than with us, and that even among the poorer classes of the peasantry, numbers are the proprietors of the land they till, and must be trained to a judicious appreciation of agricultural appliances; whereas in England the organization of husbandry is essentially different, and the labourer is trained to be himself a living tool.

Alimentary substances occupied about one-half of the Fourth Hall. This collection, though very interesting, presented perhaps a less satisfactory *ensemble* than other departments; there were some notable deficiencies, whilst, on the contrary, some series were carried out to an extent beyond the requirements of an economic exhibition.

The other half of the Hall was taken up by a depart-

ment which, though last in succession, was first in the catalogue, and certainly second to none in importance—that of architectural designs and appliances.

I may be allowed to borrow from the *Builder*, of the 4th instant, an account of this department of the Exhibition, furnished by Mr. H. Roberts, the Honorary Architect of the Labourers' Friend Society:—

"The principal place in the Exhibition was occupied by specimens relating to the construction and furnishing of dwellings. It is curious to note the various steps taken in Belgium for the improvement of the dwellings of the labouring classes. The Hygienic Congress of 1852 had given much of its time to the sanitary amelioration of populous districts, and it laid down a series of resolutions on the subject. In these, rules for the building of habitations for the working classes and poor were published. This subject was taken up by the 'Conseil Supérieur d'Hygiène Publique' in two reports, where the means to put into execution the resolutions of the Congress were explained. Ultimately, the 'Commission Permanente des Sociétés de Secours Mutuel' examined the question, and issued a report.

"In France, a credit of six millions of francs was obtained, in 1852, towards the erection of dwellings for the workmen in the large manufacturing towns. Thus, *cités ouvrières* have been erected in Paris, Marseilles, Lille, and other places. Still, it was the exhibition of the models of the private Society of Mulhouse (Département du Bas Rhin) which attracted most notice in Brussels. The whole capital of this Company was only 350,000 francs (£14,000), but it had a man like Müller, the architect, who supplied the deficiency by integrity and talent. The houses of the Mulhouse Society have each a garden. The French workmen can pay the rent according to a very varied scale, and become even *proprieters*. In the year 1855 the Society possessed 186 houses, of which sixty-five had been sold to working men; since then, others have been sold. M. Müller had sent to the Exhibition a work on the construction of houses for the labouring classes in town and country, accompanied by an atlas: this work is the best for any one wishing to appreciate what has been done in France. M. Bleck exhibited a model in relief of the 'Cité Ouvrière de Mulhouse,' made of pasteboard, to the scale of one centimètre to one mètre. Holland, Denmark, Switzerland, even Italy, had also contributed their share to the Exhibition of Domestic Economy; and M. Canevari, a Roman engineer, had sent a plan of houses adapted to the inhabitants of Rome and Central Italy.

"Messrs. Ducpetiaux and Dumont have exhibited a series of plans of houses for working men, both in town and country, as well as a specimen of a house furnished in every respect, which has given satisfaction. To economise space without too much restriction, systematize the means of *aération* (*not ventilation*), to economise fuel without stint, are here the leading principles. In fact, sufficient studies and plans *exist*, but it remains to make them applicable, not to hundreds and thousands, but to millions of working people. The baths, washhouses, and lavatories, after the plans of Messrs. Wynaed, Janssens, and Reinaud, exhibited, are the best existing in Belgium. Amongst the materials for construction were the cements of Medina; the varnished tiles of the manufactory of Messrs. Jonas and Delanzie, of Antwerp; the materials employed by M. Müller, in the Cité Ouvrière of Mulhouse; the specimens of Florentina marble from the quarries of Felny (Hainaut); and amongst them a chimney-piece ready for being fixed, at the price of ten francs. The Société de la Vieille Montagne had also contributed towards the Exhibition of Domestic Economy specimens of zinc, worked in all forms and for all wants, showing the great extent to which this metal can be used for building and domestic purposes. Messrs. Staadt and Deldine-Haut exhibited locks and other specimens of this sort, the prices of which are exceedingly low. The painted papers of Messrs. Vandelaer, Lorisont, and Leghers, at 25 cents. (24d.), the *roll*, were much praised for their good make and pattern. The double-action pumps of Messrs. Mathilm, Brothers, which can raise 1,000 litres per hour, cost, with a *balanceir*, only thirty francs."

On the whole, M. Ducpetiaux and the eminent men who assisted him in this great undertaking have every reason to be satisfied with the success of their exertions, and with the manner in which these have been appreciated by the members of the International Congress, and by the visitors in general.

It may have been remarked that some of the articles were above the sphere of the wants and means of the working-classes, and that others did not couple with

their low price those qualities which would render them really cheap. But it must be remembered, firstly, that the scheme of economic collections, which was not made publicly known till last year,\* cannot yet have assumed a clear and definite form in the minds of manufacturers. Secondly, the Exhibition Committee were naturally induced to accept many undesirable articles out of courtesy to exhibitors who had forwarded them from a distance. Thirdly, it was quite impossible to organize for a temporary exhibition the means of investigating physically or chemically the merits of the respective contributions.

All these drawbacks, which are inherent to a temporary exhibition, will disappear in the permanent Museum, which I am happy to say my Brussels friends fully intend to establish, having obtained for that purpose a considerable portion of the articles displayed, secured provisional premises, and been assured of the most favourable feeling on the part of the authorities.

As I have ordered a considerable number of copies of the Exhibition Catalogue, I shall be able to deposit several for distribution at the offices of the Societies of which I was a delegate at Brussels, viz., the Society of Arts, the Labourers' Friend Society, Exeter Hall, and the Metropolitan Association, 19, Coleman-street, City.

Allow me to apologise for this imperfect sketch, which circumstances have obliged me to make rather hurriedly.

T. TWINING, JUN.

Perryn House, Twickenham, Oct. 20, 1856.

### SNAKES AND SNAKE BITES.

By P. L. SIMMONDS.

There is perhaps no casualty more common, and one more speedily fatal in the East and West Indies, Australia, the Cape, and other British Colonies and foreign countries, than that resulting from snake bites. To this accident travellers, settlers, and emigrants, are particularly liable. It is, therefore, of importance that every one should know something as to the venomous snakes, and what can be done by himself or others, at once, in such cases. As either suitable surgical instruments to remove the bitten part safely, or medicines (whose efficacy to prevent death, from such injuries, is also very doubtful) are rarely at hand, it is well that persons should be aware that they can scarcely ever be without means to try effectual measures. Bringing first into a focus the scattered information respecting the venomous snakes in different countries, I may follow it up with some remarks as to the remedial measures to be pursued, and shall treat upon the various plants and specifics whose virtues have been extolled.

I am but a simple gatherer of facts and opinions, and shall not presume to go into any theories, or to give undue prominence to any alleged virtues of professed antidotes.

The Commissioner at Scinde recently offered a reward of £50 for the best treatise on the various kinds of poisonous snakes in Scinde, the mode in which the poison of each operates, and the best method of treatment, showing the symptoms during life, and the *post mortem* appearances, together with a separate code of practical instructions for treatment and cure.

Snakes appear to be in Scinde what tigers are in Singapore, the second great cause of mortality.

"There is" (remarks Dr. Buist, in the *Bombay Times*) "something very singular in the extent of the snake nuisance in Scinde, by which three hundred lives appear to have been lost in the course of the year. This, taken in conjunction with the slaughter occasioned by the wolves in the Punjab, amounting to somewhere about twice as much again, and the destruction in a few

months, of thirteen men by tigers at Singapore, impresses the mind more forcibly with the fact of the existence of a scanty and helpless population than a folio of statistical tables. Here we have man still battling with the beasts for the possession of the earth—the wolf feeding his cubs and provisioning his den from the cottage cradle—the husbandman laid dead, as he goes forth to cultivate his fields, by the bite of a reptile scarcely thicker than his finger or longer than his arm. At the battle of Meeanee we had 62 killed and 200 wounded; at Dubba our casualties amounted to 370 killed and wounded, 40 of these having fallen. The snakes commit more slaughter in a year than was incurred by us altogether in two of the hardest fought battles that had occurred in India in a century, and which "added a province fertile as Egypt to our dominion."

That these things must have gone on in the Ameers' reign for unlimited periods unnoticed may be taken for granted. Now that they have become known to us, no time should be lost or efforts spared to mitigate a mischief obviously capable of extinction. There are about forty varieties of very beautiful snakes in the island of Bombay, of which some four or five only are dangerous.

The water snakes there are also venomous. The natives represent all snakes as poisonous, and as they are not very nice discerners of the fact, the belief, if not a sound, is a safe one, and may help to keep them out of harm's way. Few things would be more interesting than good collodion photographs of poisonous snakes. In Scinde, where gypsum abounds, and where the natives themselves are familiar with the art of plaster casting, fac-similes of the heads and necks of all the snakes in the country might be supplied to those authorized to pay the snake catchers. The mould once made, casts could be obtained in hundreds with the utmost facility.

A large and interesting collection of the snakes of Western India, preserved, has just been made by Mr. Sylvester, which is to be placed upon the shelves of the Grant College Museum.

An Indian writer, dating from Midnapore, in Bengal, observes:—"There are many local circumstances in this district which render the propagation of snakes and its attendant mischiefs a matter of easy occurrence. The vicinity of large tracts of uninhabited jungle, where every variety of the reptile acquires an uncommonly large size, and where the smaller ones being preyed upon by the larger, contribute in no small degree to render the latter by far the most predominant class; the nature of the soil; but above all, the antipathy and dread of the natives to destroy snakes of the cobra family, upon moral and religious grounds, may be said to be the principal ones. No Hindoo in this part of the country will kill a cobra on any account, because it is believed to have been a Brahmin in its former existence; and its death brings down upon the head of its destroyer the same amount of curse as upon him who kills a Brahmin. And they firmly believe that none but those who are predestined by the curse of a Brahmin will ever be bitten by that snake; hence the strange fatality on the part of the people, who will seldom hesitate to sleep in the same room in which even its hissings are distinctly heard; with so much infatuation on their part, it is rather surprising that comparatively so few casualties take place. I have very often seen the snake-catchers succeed in capturing large cobras, and after extracting their fangs, and playing with them for a few days in the streets, take them to the jungles of Gope, and leave them there to roam at large, or perhaps to find their way back into the city, through the Cassie. It is worthy of remark, also, that the station and town of Midnapore, owing to the numerous mud hamars (barns) which they contain, afford not only a safe retreat to these "little instruments of mighty mischief," but the miceholes which always abound in these rice houses attract and invite the snakes, on account of the very mice being to them a delicate food.

\* The "Mémoire" on this subject, which was so favourably received by the Emperor of the French in June, 1854, was only printed for private distribution.

That highly interesting and poisonous snake the Cobra, has received various names in different countries especially in India. It is the "Vepra Naja" of the naturalists, called by the Portuguese cobra-di-capello, and has the English names of the "Hooded snake" and the spectacle snake. Its Indian names are "Kuret," "Khorish," "Kellay," "Gowhun" and "Gokhoora," the latter derived from the semilunar marks on its head resembling the hoof of a cow. It is also called "Keotay."

Venomous serpents in general, and cobras (*Najas*) in particular, appear to be more prevalent in Hindustan in dry, rocky, or uneven ground, than in moist, level places. But further to the east, the cobra occurs as frequently in the moist plains of the Malayan peninsula, Penang, and Singapore, as in the hills.

The ophidia of Ceylon are numerous, and the Singhalese state that there are about sixteen venomous species.

Mr. Sylvester has illustrated the direction of the poison apparatus of the "*Vipera Russellii*," consisting of a gland for the secretion of the poison, a duct, and a poison tooth, or fang.

"The gland" is oval, of a pale fawn colour, about the size and shape of a small almond, and consists of a number of elongated lobes; each lobe is divided into smaller ones, or lobules, in which the poison is elaborated. The gland is enveloped in a tolerably firm capsule of fibrous tissue, which is attached to the cranial bones by processes, and being in contact with the surrounding muscles, the expulsion of the poison is greatly facilitated.

"The duct" conveys the poison from the gland to the fang. It commences as a groove near the base, and in front; then becomes deeply lodged in the centre of the tooth, where it is protected by two inflections of enamel, which unite and convert the groove into a canal, again to become a simple groove at the apex of the fang, to permit of the discharge of the poison.

"The fang" in this instance is about  $\frac{3}{4}$  of an inch in length, presents a sabre-like curve, with the convexity anteriorly, the base is laterally compressed, and the apex is produced to the finest point. In both jaws a reserve fang is embedded beneath that in use.

Mr. Sylvester also points out that harmless can readily be distinguished from venomous snakes by an examination of their teeth. The poisonous kinds are deficient of an outer or marginal row of teeth in the upper jaw, which are present in the harmless varieties, and are fixed to the maxillary and premandibular bones, but their place is supplied by the grooved poison-fang. Both varieties have two palatal rows of teeth, which run from before backwards, a little outside the median line of the roof of the mouth, and are embedded in the palatal and pterygoid bones.

A few exceptions however occur, as in the genera "*Dryophis*," "*Dipsus*" and the "*Bucephalus*," where the marginal teeth increase in size backwards, and several of them are traversed with a groove through which an acrid saliva is injected; but no true poison gland exists.

In making an examination of poisonous snakes some little care is necessary, as they have the power of concealing the poison fang in the lax gum, by a rotation backwards of the superior maxillary bone, and thus they effect a change in the direction of this large tooth, which would otherwise impede the passage of the food through the mouth.

I may quote from a paper recently read at the Literary, Scientific, and Medical Society of Graham's Town, a few additional observations on the structure and functions of some parts of the serpent:—

"The poison apparatus consists of two parts—a gland for the secretion, and a fang for the transmission of the poison. The glands are two in number, and occupy the sides of the posterior half of the head. Each consists of a number of elongated narrow lobes, extending from the main duct which runs along the lower border of the gland upwards and slightly backwards. Each lobe gives off lobules throughout its extent, and each lobule is subdivided

into smaller secorning cœca, which constitute the ultimate structure of the gland. The whole gland is surrounded by a double aponeurotic capsule; the outermost and strongest layer is in connection with the temporal bone.

The poison fangs are situated on each side of the roof of the mouth, and are firmly united to the upper maxillary bone. Behind these fangs there are the germs of several undeveloped fangs, ready to take the place of those which are in use if they should be broken. These supplementary poison fangs are loosely attached by ligament to the bone, and are covered over by a firm membrane. Professor Owen remarks "that a true idea of the structure of the poison fang may be formed by supposing the crown of a simple tooth to be pressed flat, and its edges to be then bent towards each other and soldered together, so as to form a hollow cylinder, open at both ends. The flattening of the fang and its inflection around the poison duct commence immediately above the base, and the suture of the inflected margins runs along the anterior and convex side of the recurved fang; the poison canal is thus in front of the pulp cavity." In this way the fang appears, as is commonly described, to be perforated by the duct of the poison gland. The fang—which the writer now produced—with a bristle passed through the poison canal, illustrates very plainly the poison canal passing along the convex side of the tooth, with the pulp cavity of the tooth behind it. It also shows the termination of the canal a little above the point of the tooth, a construction which renders this part much stronger; and, consequently, less liable to be broken when the deadly blow is struck, than it would be if the canal had been carried on to the extreme point. The poison fang rotates with the superior maxillary bone, so as to keep the tooth laid flat at ordinary times, and to erect it when the animal wishes to use it. During this act the head of the snake is raised, drawn backwards, the fangs erect—and exposed by the widely opened mouth—are struck, by the force of the powerful muscles of the head and neck, into the surface aimed at:—the poison bags at the same moment are squeezed, and their contents driven, through the canal in the tooth, into the wound. Professor Owen thinks that the rage which stimulates the venom snake to use its deadly weapon, excites increased secretion of the poison, just as the salivary glands secrete more saliva when excited by certain emotions—as, for example, the sight of food frequently—to use a common expression—"makes the mouth water." A very interesting and accurate account of the arrangement and structure of the poison-fangs in a rattle-snake, dissected in the year 1682, by Ed. Tyson, M.D., is given in the *Philosophical Transactions* for that period.

The teeth of the serpent are small, simple, conical, and directed backwards. In the non-venomous species there are four rows in the upper jaw—two outer, attached to the maxillary and inter-maxillary bones; and two inner, attached to the palatine and pterygoid bones. In the venomous kinds the outer rows of teeth are supplanted by the poison fangs. In both the venomous and non-venomous species, the lower jaw is armed with a row of sharp, recurved, simple teeth. In some serpents, the inferior spinous processes of the cervical vertebrae are long and sharp, and penetrate the upper wall of the gullet, and serve for crushing food, such as eggs, &c., upon which these animals feed.

In treating of the distinguishing characters between the poisonous and the harmless serpents, the writer observes that the differences may be arranged under two heads: first the existence of poison fangs,—second, external characters.

The structure and appearance of the poison fangs have been already described; but it appears that some authorities doubt that all serpents destitute of pierced fangs in the lower part of the jaw are non-venomous. In the last edition of *Cuvier's Animal Kingdom* it is stated that all have a maxillary gland, often very large, and the

back teeth frequently exhibit a groove which would seem to contain some liquor. This much is certain, that various species—the back teeth of which are very large—are reputed to be extremely venomous in the countries which they inhabit,—an opinion which is confirmed by the experiments of Lalande and Leschenauld, which it is desirable should be repeated. Again, it is not always an easy matter to distinguish between the poison fangs and the common teeth, for in some varieties of serpents there is scarcely any difference in the size and appearance of these structures. As a general rule, however, when there is found a tooth-like process firmly united to the anterior and external part of the upper jaw-bone, the latter bone at the same time being very small and moveable, then there is considerable certainty of the existence of a poison fang. The following simple operation will assist in distinguishing between the poison fangs and common teeth. Let a pin be drawn from the anterior and external part of the upper jaw to the angle of the mouth; if no more teeth are felt in that line than one or two at the fore part, it may be certainly concluded that these teeth are fangs, and that the serpent is a venomous one. If, on the contrary, the teeth before mentioned are found not to stand alone, but to be only part of a complete row, then it may as certainly be concluded that the serpent is not venomous.

Next, as to external characters which assist considerably in distinguishing poisonous from harmless serpents. As a general rule venomous serpents are found to have a broad, flat, and depressed head. There are a few exceptions to this rule, as, for instance, the *naja*, a species well known to be venomous, which has a head neither broad nor depressed; and again, the genus *boa*, which is not venomous, has a broad and depressed head.

In the venomous species the tail never exceeds one-fifth of the length of the body. It may be much shorter, but in no specimens which have been examined has it been found any longer. It appears that little dependence can be placed upon this circumstance, as a tail as short is sometimes found on the non-venomous species; nevertheless, it is pretty certain that a snake with a tail exceeding one-fifth of the length of the body belongs to the harmless kind. The form and appearance of the tail may also be taken, to some extent, as an indication of the venomous or non-venomous character of a serpent. A thin and acute tail is by no means always found on the poisonous, but a *thick* and *obtus*e one is *only found* in the harmless species.

The elevated line, or carina, seen on the scales of many serpents, is a mark of great use in distinguishing the species. Of 112 varieties of serpents not venomous examined, 80 were found to have smooth scales, and 32 to have carinated scales. Of 26 venomous serpents examined, 20 had carinated scales, and only 6 had smooth scales. So that in the venomous species carinated scales were ascertained to exist in the proportion of about 4 to 1, whereas in harmless serpents the proportion was about 1 to 3.

Although, then, any one of the signs just enumerated cannot be considered as indicative of a venomous or non-venomous serpent, yet, where they are found to exist together, its character may with perfect certainty be decided upon.

Among the venomous snakes of the Cape Colony are the cobra de capella, the puff adder, the berg or mountain adder, the boom slang or tree snake, and the garter snake. There are others which are believed by some people to possess noxious qualities—a belief, however, not warranted by dissection.

Of the cobra de capella there are two varieties, one named the true cobra, which is of a bright yellow colour—the other, of a dark olive hue, is termed the bastard cobra. These are both equally venomous, and possess the power of erecting themselves and swelling their hood, which does not bear the mark, in form, of a pair of

spectacles, which is found on the cobra of Ceylon and India when attacked or irritated.

When full grown, they are from 4½ to 5 feet in length; the yellow species having rather the advantage in point of size—the head flat and somewhat triangular, but the tail long and tapering. The upper jaw is arched, with one, sometimes two fangs on either side, through which the poison is ejected from the reservoir when the reptile fastens on its enemy or prey. This reptile has been so audacious as to pursue a man for a considerable distance, and it has been said that individuals have been obliged to run from them—a statement which requires confirmation, for though, when attacked, the creature assumes an attitude of defence, yet, if an opportunity offer, it glides away to a place of concealment.

The puff adder has a broad flat triangular head, and a short tail, tapering very abruptly—the characteristic marks of a poisonous reptile. It is about 2½ feet in length, of a disproportionate length, the skin being beautifully marked with various hues of black and bright yellow. The mouth is wide and capacious, with two long curved fangs on either side of the upper jaw. When irritated, it utters a remarkably loud hiss, resembling the steam from a tea-kettle. It has been affirmed that this reptile possesses the power of throwing itself backwards to the distance of several feet when it strikes its prey, which it is said to do with unerring certainty. This perhaps is somewhat fabulous, as the animal appears to be rather torpid and inactive.

The berg or mountain adder, as its name indicates, is generally found on the summits or sides of mountains. It is said to be the most venomous snake which inhabits the Cape colony. It is small, not exceeding a foot in length, and of a grey colour; the head is flat and triangular, and there is a peculiar crest or ridge over each eye; the tail is short and abrupt; the upper jaw is armed with fangs. From the colour and size of this reptile, it is particularly dangerous, owing to the liability of its being trodden upon unobserved.

The boom or tree snake, although it possesses fangs, is deficient in marks of being a venomous reptile. It measures about five feet in length, the circumference of the body being small and tapering, which peculiarly adapts it to the habits of the animal in gliding from tree to tree, which it does with incredible celerity. Its colour is dark brown or olive, the plates along the belly being of a bright yellow hue.

In Natal serpents are abundant, and many of them are very poisonous, though they are not usually aggressive in their disposition. The puff adder, the cobra, the pystur, and a large green snake, held sacred by the natives, are the most frequent and the largest. One serpent is capable of projecting from its mouth two fine streams of a poisonous fluid, which causes severe inflammation of the skin with which it comes into contact. Scorpions are often met with, the sting of which, though exceedingly painful, is not often fatal.

The bite of different sorts of serpents in Southern Africa is generally fatal very soon after the infliction of the wound, and many instances of losses of life annually occur from this cause, especially in the more grassy districts bordering on the coast, both eastern and western.

Mr. Chas. L. Zeyher, in a recent botanical journey into the interior of Southern Africa, remarks that one of his dogs “started into a dense bush when we came near to him, bringing out in his mouth a snake, of the kind they call ‘Spugg slang,’ or ‘Spit snake.’ They are considered very poisonous, and the poor dog, being wounded in the struggle with the venomous reptile, showed dangerous symptoms soon afterwards. He began to stagger along the path which we travelled, and lost his sight. It was fortunate that we had fresh milk at hand, of which we gave him repeatedly to drink, with which valuable medicine we arrested the progress of the poison, and the dog was finally, though slowly cured. These kind of snakes are not rare in the western districts



of the Cape Colony, towards Namaqualand. They can force, through the hollow of their fang, when they are pursued hotly (as they instantly turn when they cannot escape, facing their combatant), a very caustic acid, smelling like formic acid, and spirt exactly into the face of their enemy. One instance I can relate where I pursued such a snake near the banks of the Kousie River. Having no chance of escape, it turned round, and, facing me, projected a frothy liquid towards me, of which only a small quantity touched the under part of my face, but the most of it fell on my breast. It was fortunate that the distance between me and the snake was about eight paces, otherwise the poison would infallibly have reached my eyes, and blinded me. Thinking it was an Elak-snake when I pursued it, I had no idea of any danger at such a distance, until I received warning of that dangerous reptile. We despatched it, however, but it cost one of our whip-stakes, which the waggon-driver broke when beating it. These kind of snakes seem to be equally dangerous when they bite with their teeth, as when they spirt through the hollow of their fang a poisonous fluid into the eyes of their pursuant."

Snakes are numerous in various parts of Australia. A good account of those common in New South Wales was given in the 13th vol. of my *Colonial Magazine*. They include the following:—

1. The black snake. This, which appears to be a species of the genus *Acanthophis*, is numerous; the bite is not considered fatal, or, rather, is the least deadly of all the kinds. Their usual length is from three to eight feet. The natives cure themselves when bitten by sucking the wound and bathing it with water. The snakes delight to frequent river banks, creeks, and moist places.
2. The yellow snake, usually larger than the black, varying commonly from four to ten feet; the bite is generally fatal. This species is said to creep abroad by moonlight in the summer season.
3. The greyish-coloured snakes are very venomous, and may be often found in the neighbourhood of houses and farms, in search of mice, eggs, and birds. One lately entered into a cottage, and meeting a cat bit it; the animal jumped, and fell dead instantly. In October and November the poison seems to be more active than at any other season of the twelve months in all the class.
4. The brown snake is greatly dreaded by the aborigines; the bite is suddenly fatal; they frequent moist situations, mountain bottoms, &c., and are smaller than most others yet described, varying from two to six feet in length. All the serpent tribe seem to require water for drink once a day in summer.
5. The carpet or diamond snake grows to a large size; some have been seen eight, twelve, sixteen, and, credible witnesses say, twenty feet long. The poison is not so virulent as many others, which may be inferred from their large size; they habitate the mountains and rocks, and have frequently been killed with large opossums in their bellies. Hollow logs are a frequent resort for all the serpent tribe, and during the day a fallen tree is always a seat of danger to the bushman.
6. The green snake is usually found in scrubby grounds or thickly-wooded places; the bite is very deadly, and suddenly fatal; they may often be seen lying on branches of trees, ready to drop on the passenger, bird, or other prey; they are expert climbers of trees, slender, and rarely more than five feet in length. On the Clarence River these snakes are very numerous, and are often seen pendant from the forest trees.
7. The whip snake is usually of a light gray colour, from two to three feet long; they frequent the banks of rivers and creeks, and nestle in the earth or in the hollows of trees. A variety is found at Port Boyne of much brighter colours and larger size, frequenting trees in great numbers. All the whip snakes are proverbially dangerous, and the poison most active and fatal. The whip and green snakes are said to be more dangerous than any other, for they not only stand on the defensive, but will attack, without provocation, the unwary traveller.
8. The water or

ring snake is usually found in wells, water-holes, or stagnant pools; they often exceed five feet in length; the number of rings increase with age. One of six feet (rare), when killed, had thirty-three rings, and no two rings alike in colour. It is the most beautiful of the tribe, if such "varmint" can be called so. The writer is not aware whether their bite is dangerous, but he would avoid making the experiment.

9. Though not pertaining to the snake tribe, the deaf adder may be mentioned, of a different shape and habits. Its poison is not less fatal than any of the serpent race. The eye of this hideous reptile is vivid yellow, with a black longitudinal pupil. The colour of the body is difficult to be described, being a complication of dull colours, with narrow blackish bands, shaded off into the colours which compose the back. A coarse lumpy head, body commonly eight to twelve inches long, sometimes two feet, tail terminating suddenly from a lumpy body to a point, in which tail or extremity, according to popular rumour, is a needle-like sting, holding a poison so active that, injected into the blood, death ensues, without remedy, to large animals in twenty or thirty minutes, and to small ones instantly. They are usually found about old rotten wood and bark of dead trees, are very sluggish and inactive, and never sting but by mischance. Some men say the reptile possesses the power of contracting the body, and elongating the same to eighteen inches or two feet.

10. The slow-worms are from three to twelve inches long, and a dirty brown colour. They are found in soft sands or hills of loose earth, but are as totally blind as the adder is said to be deaf. Their poison is as fatal as that of the deaf adders.

The collection of serpents deposited in the Museum of Natural History at Paris, by different naturalists and travellers, comprises about 330 species; one-fifth of this number is found to be composed of the venomous kind, in so far as can be ascertained from the habits and peculiar fangs of the serpents. Amongst the varieties of the venomous serpent, the first in rank is the rattle snake, found throughout the continent of America, and whose sting proves mortal in less than six minutes. Next comes the *Naja* or spectacled serpent, which exists in the east, and thirdly the spear-headed serpent (*Trigonocephalus*), of Martinique and St. Lucia. The venom of the viper is less virulent than that of many of the poisonous serpents, but still sufficiently severe in the warmer climates to produce even the most fatal results.

In the island of Trinidad, there are few kinds of poisonous snakes. One about two feet in length and very beautiful, is called the coral snake. The second, about 3 feet long, is termed the cascabelle. The third, called the mapapero, reaches the size of five or six feet, and is bold enough to attack a man. The last, known as the pine-apple snake, is very rare. It attains the size of 7 feet long, and is as thick as a man's leg in circumference. It is of a bright yellow colour, spotted with brown, has about 207 plates on the body and 32 on the tail; the scales are in the form of lozenges, like the rind of a pine-apple, hence the name; boa constrictors of an enormous size, are occasionally met with in this island. In 1818 one was killed that measured 18 feet; subsequently, one was taken in the mountains above Port of Spain, the capital, considerably larger. When opened, a deer was found in his maw. The stings of two kinds of scorpions, a brown and a black variety, are severe but not mortal.

Snakes are numerous in Canada; but venomous kinds are not so plentiful as in the country more south (in the United States). The venomous kinds embrace the rattlesnake, adder, and the copper-head.

Those which are harmless consist of the large black snake, the small brown snake, and the garter snake. Great numbers of the snakes are destroyed by the large hawks, which seem to consider them a very delicious morsel.

In the United States the bull snake averages from five



to nine feet in length. It is prettily marked on the back, of a wood colour and dark brown, mingled in squares; the belly is yellowish. This snake has a very tough hide, which it is impossible to break with a club. It is a formidable foe to poultry—but its bite is not reckoned poisonous.

The common striped snakes are plentiful, and the rattlesnakes are often met with in the forests.

The little striped lizard and the large black and yellow spotted lizard are reported to be venomous.

Having occupied so much space with a description of the varieties of poisonous snakes common in different localities, I must defer the remarks and observations upon medical measures and the antidotes recommended until another opportunity.

8, Winchester-street, Pimlico, Oct. 15, 1856.

## Colonial Correspondence.

### THE RESOURCES OF JAMAICA.

SIR,—Will you be good enough to publish the accompanying interesting information, kindly furnished by Sir Wm. Hooker, with full permission to make such use of it as I may think expedient.

Yours, &c.,

LEONARD ROWE VALPY,

Agent of the Royal Society of Arts of Jamaica.  
5, Spring-gardens.

"For a long time 'Cuba bast' was the product of a plant not known to botanists, and supposed to be *peculiar* to Cuba. It used to be employed for tying up bundles of cigars at Havannah; and, of late years, it has been extensively employed for tying up plants, and sold at all seed-shops and at horticultural establishments.

"During the past twelve months, I have twice or thrice received from Cuba seeds of the bast plant, and satisfactorily proved it to be the inner bark of the *Hibiscus elatus*.

"I have just received from Wilson (the curator of the Botanical Garden, Jamaica) the same material *identically*, the 'Mahoe' of Jamaica, and quite correctly named '*Hibiscus elatus*.' *Cuba bast may thus be had in any quantity in Jamaica.*

"Don Ramon de Sagra, in his 'Flora of Cuba,' fully describes the *Hibiscus elatus*, and never suspects it produces the Cuba bast. Wilson obtains the same substance from *Hibiscus elatus* as the Cuba bast, without suspecting it to be such."

## Home Correspondence.

### BESSEMER IRON.

SIR,—I examined with pleasure the samples of tinned plate and Tagger iron which you had received from South Wales, and which were said to have been rolled out of iron made by Mr. Bessemer's process. There can be no doubt but that if iron, such as I saw, can be *uniformly* made to produce such results as these exhibit, and with no loss in yield beyond that which attends the customary methods, much value may attach to it; but unless we trace every detail, and know its cost, there is nothing surprising in it, since, without any puddling operation, from the ordinary refinery, charcoal malleable iron has been made with all the purity that is seen in these samples.

Even these, therefore, prove nothing as to the commercial value of this process; and unless something very much beyond merely showing samples, or making an occasional bar, is done by some well-known ironmaster,

at whose mills may be seen some hundreds of tons of iron made per week by this method, there will be very little credence given to its merits by practical men.

If it really is so satisfactory, and the product of the Bessemer furnace is a pure malleable ingot, ready for the mill without undergoing the forge process, what is there to prevent Mr. Bessemer, or any licensed ironmaker, from rolling off the finished iron at once. The apparatus is not expensive, nor are there wanting at any iron-works the materials with which to construct it, so as to be at work in a week, and yet weeks and months are passing over, and all we hear of is a sample piece of sheet iron, or a bar or two, made thereby. No, the fact is, there are found to be practical and serious difficulties in the way, which Mr. Bessemer has not been able to overcome, and which, he will find, cannot be put aside, so as to make it economical, and thereby establish its commercial value.

Two things have been promised to the public: to make pure malleable iron *without additional fuel* in the conversion from cast iron; and, by thus saving all the forge process, realising an economy of *forty shillings per ton*. Not only a saving of forty shillings per ton, but securing a quality of iron equal to charcoal iron by all impurities having been abstracted. Two results would follow upon the promise being realised, namely, a saving of not less than *three millions of pounds sterling per annum*, upon the quantity of malleable iron now made, and the satisfaction of having a *good article* for all the common purposes of life wherein iron may be applied. If realised, the introducer ought to be placed on the highest pedestal of public regard; but, if promised, and not realised, where should he then be placed?

I mean no ill-will in asking such a question, but I confess that I must put both sides of the picture, since no proposal such as that given could be advanced without disturbing much of the business of ironmaking; and the non-realisation of large practical results tends rather to place Mr. Bessemer under the second head of the question.

However, as Mr. Bessemer has two patents still unspecified, although, I confess, I do not see, from anything he has yet done, any opening which will secure the results he contemplates, as he has really done nothing beyond that which Mr. Martien had reached before him, I should be glad to see proofs of intrinsic merits by the iron trade grasping at the saving promised, which they would do if they were only sure of a satisfactory and substantial result, but which can only be hoped for *from something still unspecified*.

I am, &c.,

THOS. W. GLADSTONE.

10, Austin-friars, 18th October, 1856.

### ADULTERATION.

SIR,—This subject is now occupying much attention, and it is desirable that some practical regulations should be adopted with as little delay as possible. The principles of liberty must not be permitted to give sanction to so dangerous a system of fraud, or to protect the few, at the risk of health, and even life, to the many.

The concentration of individual opinion will in this, as in most other questions of public interest, afford the surest guide to those who have to frame the required enactment. Possibly, the following contribution to the general stock of suggestions may be deemed worthy of consideration.

A broad distinction must be made between unwholesome adulteration and simple adulteration, as the latter, though fraudulent, may yet be wholesome. Among the former may be instanced the poisonous preparation of sweetmeats; and of the latter class, is the Irish salt butter, washed and sold as fine Epping butter.

The author of a valuable work, entitled "The Tricks of Trade in the Adulteration of Food and Physic," recommends the system of government inspection as the

only available remedy; but there would be danger of a counter-balancing evil in the tendency of the people in such cases to rely solely on the protection of the government.

It may be that a middle course could be adopted, by enacting that on the sale of all articles, in value over a low fixed figure, the purchaser might require a statement from the vendor of the contents, which could easily be given by means of a printed label. Any party giving a false statement should be liable to a fixed penalty, or term of imprisonment.

To protect the poorer classes it would be necessary to appoint inspectors, with power (limited within due bounds) to demand samples, which should be sealed in duplicate—one of which should be left with the dealer, and the inspector should deliver the other to a recognised authority for analysis, and in case the charge of adulteration was to be made, the inspector should be authorised to demand the second for a similar test, to be made in the presence of the dealer or his representative if required. The punishment imposed might be made to vary according to the per centage of adulteration.

The occasional visits of such inspectors would not be more objectionable or irritating than those of the inspectors of weights and measures. It must always be remembered that such hindrances to fraud operate directly to the advantage of the honest trader, and surely the aggregate of society need not have much compunction respecting any reasonable interference with the tricks of the trade.

Some such system might be tried in London, where offices for analysing could easily be established. If the main source were purified there would be a speedy reaction in the country, and in case country dealers persisted in the present nefarious practices, there would be an available remedy by means of existing—and daily extending—facilities of communication with the metropolis.

I have only ventured to trouble you with a cursory outline of the views which have occurred to me, but by ventilation in your columns, any portion that may be of practical utility is pretty sure to be recognised.

I am, &c.,  
L. R. V.

#### AMPHIBIOUS CARRIAGES.

SIR,—One of the authorities who witnessed officially Mr. Francis's experiments at Woolwich, assures me that he (Mr. Francis) disclaims all other inventions than that of the corrugation of metal for boats, &c., and the apparatus for effecting this purpose. Thus, what has been said of the advantage of amphibious carriages in warfare, remains wholly attributable to Brigadier General Sir Samuel Bentham. I ought to have added to my communication of the 19th ultimo that in the summer of 1830 Sir Samuel met with an accident, which eventually proved fatal, and which prevented his further prosecution of the subject in question with the Duke of Wellington.

Mr. Francis corrugates the metal by hydraulic pressure, but it was observed by my friend, that of course a rough surface retards the speed of a vessel, and this might be a serious obstacle unless remedied.

I am, &c.,  
M. S. BENTHAM.

26, Wilton-place, October 27th, 1856.

#### INUNDATIONS.

SIR,—The awful destruction of life and property by these constantly recurring almost annual disasters is a matter for serious consideration, the more so, because it is to our own want of caution and foresight that we may mainly attribute these distressing events.

Rivers and brooks are the natural drains of the country, and if we obstruct their course by dams and weirs we contravene nature's laws, and must abide the consequences.

Every dam or weir raises the bed of a river with regard to the surrounding country, prevents the freshes or floods from scouring away the summer deposits, greatly increases the height and extent of every inundation, and renders almost insurmountable the difficulty of getting rid of our waste waters and sewage. For if our rivers and all their tributaries could by any means be freed, from the source to the sea, of every artificial and other obstruction, draining, for either surplus water or sewage, would be easily and effectually accomplished with neither extraordinary trouble nor great expense.

Thus if the Thames, from its source in Gloucestershire, and all its tributaries, were cleared out, and the most exaggerated serpentine bends eased or removed, the citizens of the metropolis would meet with very little difficulty or expense in getting rid of waste water or sewage. The bed of the river would be much lower than it is at present, and the ebb far more powerful, more so indeed, than the flood.

Brindley, the great progenitor of inland navigation, after he had been running down rivers as useless incumbrances, when he was asked by the Members of the Committee of the House of Commons what he thought they were made for, he, after some hesitation, made this memorable reply, "*That they must have been created in order to feed navigable canals,*" entirely forgetting the true purpose and intent of rivers and brooks, and that he was entailing upon posterity the curse of increased inundations, as well as the almost overpowering difficulty of getting rid of our drainage.

Brindley, though a great and skilful engineer, was, however, an unlettered man, and was in the habit of devoting days and nights continually in bed to making his calculations by head-work alone.

We are not satisfied with creating or allowing all this mischief; but we are so perverse and headstrong, that we take delight in building and setting up our farms and buildings, our warehouses and factories so close to the water's edge, as to be actually, in many cases, below ordinary high-water mark, and dreadful is the result when a tide or flood rises above its customary standard, which is often the case early in spring and late in autumn.

There is yet another evil of no small magnitude, resulting from our artificial and other obstructions to the course of our rivers and their tributaries. There are many harbours, I should rather say there were (for many have long ceased to be), which those obstructions have caused to silt up and become useless, or so filled them with shoals and flats as to render the navigation intricate, difficult, and dangerous.

I have constantly before my eyes in this and the adjoining counties, ample instances of the mischief I complain of. The town of Wareham, situated at the head of Pool harbour, has two rivers emptying themselves into the harbour, of which two rivers, the Frome and the Piddle, every inch of fall has been made available for some other purpose or other. What is the consequence? In the time of the Roman occupation of this country, Wareham was a seaport town, and the largest ships of that day could come close up, whereas now our common coasting vessels cannot approach the town within four miles. The remains of great Roman highways, commencing at Wareham, and running entirely across to the eastern coast, are still to be seen. The entire courses of those two rivers have been a succession of dead levels, the falls at the mill-dams having, of course, no effect whatever in scouring the bed of a river.

Christchurch harbour was once of some note, now scarcely navigable for small fishing boats. Christchurch has also two rivers, the Stour and the Avon, each reduced as usual to a series of dead levels by means of artificial obstructions. The same may be said of Lyminster and Beaulieu, which are both in the same deplorable condition.

There is no need, however, to multiply examples. Take the whole coast line from the Thames' mouth to John

o'Groats, and the same results, derived from the same causes, may everywhere be seen.

In bygone times, when population was thinly scattered, and industry and commerce were in their infancy, these effects were neither so frequent, so severe, nor so much felt as in these busy stirring times; but we have now a colossal power, as cheap as water power in most cases, and cheaper, when the destruction of property and loss of life is taken into account. The only drawback, and a great one, is the vast accumulation of vested rights and interests, the cost of the purchase of which, however, would in the end result in an immense saving to the country at large.

I am, &c.

Poole, Dorset.

HENRY W. REVELEY.

#### HYDRAULIC CEMENT.

SIR,—The want of a cement under this title is unknown to the Italians, their brown or water lime being the only substance used where hydraulic mortar may be required. It is a common lime of the country, and is used indifferently for all foundations of public and other buildings, outside work, fortifications, and works under water, or exposed to the dash of the sea. The Italians have also the usual white lime, but it is only used for interior work. These two limes are both the same price to purchase, but the white is the cheapest, because it will carry half as much sand again as the brown will. The latter is made from the boulder stones washed down by the Apennine torrents, while the white lime is made from the regular limestone rock, and though wholly unfit for hydraulic mortar, a dab of whitewash will remain exposed to the weather on brick, tile, or stone, for centuries.

The brown lime mortar does not set rapidly as all our artificial cements do, but as the only precaution necessary in using this mortar is to inundate the courses with water as fast as they are laid, it forms a solid concrete mass when actually used under water, it matters not whether salt or fresh. As a proof of strength I may state that the Italians build their largest wine-vats of only four-inch work, often eighteen or twenty feet high, stuccoed inside and out with the same mortar, composed of brown lime and coarse strong sand. Iron hoops are slipped on outside, as a measure of precaution. In every case the Italian hydraulic mortar has endured for ages, as innumerable works on land and in the sea, of ancient and more recent times, most amply testify. It is true that in the more important works, "Pozzolana," or volcanic cinder of clay, is used in grains as large as peppercorns, instead of the usual coarse sand; but that same "Pozzolana" would be utterly useless if mixed with the common white lime.

This short notice is intended to stimulate geologists to seek for a similar limestone in this country: it may possibly be found in Wales. The object to be gained is of some importance, as the discovery would entirely supersede the very expensive processes of manufacturing and grinding our various patent and other cements, which are all vastly inferior to the common water-lime of Italy that has been used from the most ancient times, ages prior to the foundation of Rome, until the present day.

I am, &c.,

Parkstone.

HENRY W. REVELEY.

#### Proceedings of Institutions.

BRADFORD.—The fourth year of the Literary Institution having terminated, the Committee, in presenting the annual report of their proceedings, congratulate the members upon the steady progress of the Society, and the continued interest felt in its welfare. Great liberality has been shown by those members who have voluntarily come forward and increased their yearly subscriptions to

enable the Committee to meet the extra annual expenditure. The number of subscribing members during the past year, ending August 31st, is 148; the total revenue from subscriptions amounts to £72 8s., of which £67 is from annual subscribers, and £5 8s. from half-yearly and quarterly subscribers. The lectures for the past year, though neither so numerous nor so well attended as could be desired, have been of high interest and ability. The library has received numerous additions during the past year; the number of volumes issued to the members has been 1,902. The "Mutual Improvement Class" meetings have been well attended; eighteen evenings have been employed in the reading and discussion of Essays on various branches of Literature and Science, interspersed with dramatic and poetical readings. The following gentlemen constitute the Committee for the ensuing year:—Mr. G. Spencer, Mr. Eml. Taylor, Mr. T. Scutt, Mr. G. Spackman, Mr. H. Summers, Mr. W. C. Green, Dr. W. Adye, Mr. W. Taylor, jun., Mr. J. Baines, Mr. H. King, Mr. G. Chapman, Mr. W. Hale.—*Treasurer*—Mr. J. Overbury; *Librarian*—Mr. S. Taylor; *Honorary Secretaries*—Mr. G. Marks and Mr. J. Bulgin. The Committee having made every exertion in their power to bring the Society to its present status, suggest that much may still be done by personal influence and individual exertion to procure additional support, and render permanent the interest which the public has shown in supporting this valuable Institution.

CHICHESTER.—The anniversary meeting of the members of the Literary Society and Mechanics' Institute, took place on Wednesday evening, the 8th inst., in the lecture-room, South-street, on which occasion there was a tolerably numerous attendance. Dr. Tyacke having been unanimously called to the chair, the secretary, Mr. J. Gauntlett, read the report from the committee, in which it was stated that the Society at present occupies a more prosperous position than at any former period, the number of members now being 468, against 415, the number at the corresponding period of last year. The treasurer's balance-sheet exhibits a sum of £14 18s. 7d. in favour of the Institution. The members were next congratulated on now possessing the advantages (in addition to their museum, library, and a course of excellent lectures) of educational classes, and, with a view to afford additional accommodation for these classes, and at the same time provide for the better arrangement of the specimens and articles in the museum, extensive alterations and repairs had been recently effected. According to the report of the class committee, the average attendance of students at the arithmetic class was 46, at the French, 60, at the music, 60; those attending the German were less numerous, but equally zealous. No less than 1,428 persons visited the museum during the last year. A course of lectures has been arranged for the winter season, which, from their variety and the high character of the lecturers, promises attractions equal to any former session. The desire on the part of the committee to establish a reading-room has not at all diminished, but they regret that the Act of Parliament relating to the rating of Literary and Scientific Societies, according to the technical construction of the highest legal authorities, remains in a condition which renders it practically inoperative, except under very limited restrictions; in consequence of which they have hitherto been precluded from establishing a news-room in connection with this Society. An attempt, under the auspices of a committee appointed by the Society of Arts, was made to procure an amendment of this Act during the recent legislative session, but, notwithstanding the support received from members of all parties, the difficulties encountered in the arrangement of details, led to its postponement for the present; nevertheless, the committee entertain a confident hope that at no very distant period, by perseverance, in conjunction with other similar societies, the Act in question will be so modified as to enable future managers of this Institution to add to the

advantages already so liberally afforded to its members. The donations to the museum and library have been numerous and valuable. On the appointment of officers to serve during the ensuing year, his Grace the Duke of Richmond was re-elected President; the Rev. J. Fullagar, Dr. Tyacke, B. Adames and W. Gruggen, Esqrs., Vice-Presidents; H. W. Freeland, Esq., Representative to the Society of Arts; Mr. G. Paull, Treasurer; Mr. T. Pescod, Curator of Apparatus; and Mr. J. Gauntlett, Secretary. The thanks of the meeting to this gentleman for the zeal and assiduity displayed by him in gratuitously discharging the duties of Secretary, were moved by Mr. B. Adames, and seconded by Mr. Molesworth, and carried in a manner testifying the warm approbation of the members. Thanks were voted to H. W. Freeland, Esq., for his conduct as representative to the Society of Arts; when, in the course of his reply, he remarked upon the difficulties in the way of effecting any amendment in the Legislative Act relating to the rating of Institutions, but observed that its decision rested with the constituencies of the kingdom, who, by the exercise of a little wholesome pressure upon their representatives in parliament, might obtain a speedy settlement of the question. Thanks were next given to the conductors of classes during the past year, to which the Rev. M. Parrington responded. The business closed with a vote of thanks to the chairman, which was carried by acclamation. The session of lectures commenced with one by Dr. Letheby, upon Chemical Magic, illustrated by numerous and brilliant experiments, and one by the Rev. Hugh Hutton, minister of the Borough-road chapel, on "The Art of giving Expression to Poetry." Classes are in course of formation for the study of Arithmetic and Algebra, English History, the French, German, and Latin languages, and for the practice of Singing and Music.

RICHMOND.—The Annual Report of the Parochial Library and Reading Room congratulates the members on the rapid growth and increasing prosperity of the Society. The Library has been very successful, both as to the number of books that have been added to it, and the use that has been made of them. Above 1,000 volumes have been added during the past year, and it now consists of 1,500 or 1,600 volumes. 2,000 volumes have been taken home by members to read, besides those perused in the room. With respect to classes, some progress has been made, and those already held have been a Bible Class, by the vicar, a French Class, and a Mensuration Class. These have been fairly attended. A course of lectures was delivered, with one exception, gratuitously, during the past year, by gentlemen of high standing in their several callings, to whom the Society owes its best thanks. The average attendance was about 350. In addition to these, there have been held meetings of a less pretending nature, but still attended with great success, conversations, or smaller lectures, on ordinary subjects, attended with discussion and conversation. Many of the most effective have been given by men employed in the hard work of life, whose daily occupations have left them little time for intellectual research. An Exhibition of Works of Art, and various objects of instruction and interest, kindly lent by the nobility and gentry of Richmond and its neighbourhood, was open for 17 days, and visited during that time by upwards of 7,000 persons. Should a sufficient number of members give in their names, the committee will be glad to arrange during the ensuing winter for a singing class, or other classes according to the demand: and they are especially desirous of forming one for the instruction of adults whose education has been neglected, in reading, writing, &c. With respect to the financial prospects of the Society, the committee have great pleasure in finding that the expenditure is met by the income; they look with confidence to the Society being self supporting; and hope to be able to appropriate something every year to the increase of the permanent Library.

## MEETINGS FOR THE ENSUING WEEK.

- MON. Architects, 8.  
Chemical, 8. I. Dr. Odling, "On the Reciprocal Precipitations of the Metals." II. Mr. J. T. Hobson, "On a New Series of Organo-Thionic Acids."  
TUES. Linnean, 8.  
WED. Geological, 8. I. Prof. Owen, "On the Stereognathus Ooliticus from the Stonesfield Slate of Oxfordshire." II. Dr. Buist, "On the Occurrence of Crystallisation in a Stucco-Casting, and on other Instances of Alteration in Molecular Arrangement."  
THURS. Zoological, 3.

## PATENT LAW AMENDMENT ACT.

APPLICATIONS FOR PATENTS AND PROTECTION ALLOWED.  
[From Gazette, October 24th, 1856.]

- Dated 6th September, 1856.  
2076. Sidney Wesley Park and Edgar Stimpson Ellis, Troy, New York, U.S.—Improvements in machinery for knitting tubular ribbed fabrics.  
Dated 27th September, 1856.  
2261. James Holland and John Irving, Manchester—Improvements in the treatment of certain waste woollen yarns or threads, whereby the fibre or wool of which they are composed is rendered capable of being again spun and manufactured.  
2263. George Neall, Northampton—An improved union gas stove for lighting and heating.  
2267. Frederick Ransome, Ipswich—Improvements in the manufacture of artificial stone, and in rendering it and other building materials less liable to decay.  
2269. Joseph Edwards, Liverpool—An improved ships' log. (A communication.)  
2271. John Ormerod, Salford—Improvements in machinery or apparatus for bleaching and washing or cleansing textile fabrics and materials, applicable also to the 'soaping' of printed fabrics.  
Dated 29th September, 1856.  
2273. Jean Francois Victor Larnaudes, 2, Rue Gabrielle, Montmartre, near Paris—An anti-putrefactive and disinfectant.  
2275. James Noble Ward, of the Army of the United States—An improvement in the construction of self-priming fire-arms.  
2277. Matthew Hickson, Salford—Improvements in waterproofing certain woven fabrics.  
2279. Robert Morrison, Newcastle-upon-Tyne—Improvements in the construction of apparatus for lifting, lowering, hauling, and removing moveable articles by the direct action of either water, steam, or gaseous vapour.  
2283. Charles William Ramie, Pimlico—Improvements in constructing the permanent ways of railways.  
Dated 30th September, 1856.  
2285. Thomas Arthur Dillon, Registry of Deeds Office, and John Gray, M.D., 4 and 5, Princes-street, Dublin—An improved means for making signals on railway trains between the guard and driver respectively, and between the passengers and guard and driver, and of giving notice to the guard and driver in case of the accidental severance of the parts of a train, which invention is applicable also to steam ships, factories, and other places where it may be requisite to communicate with distant points.  
2287. Samuel Jay and George Smith, 246, Regent-street—A new material to be employed in the manufacture of bonnets, hoods, hats or caps.  
2289. Duncan Bruce, Paspebiac, Canada—Making a concentrated animal manure.  
Dated 1st October, 1856.  
2291. Charles Louis Henri Quentin, 27, Rue des Petits Hotels, Paris—Making a new kind of artificial millstones.  
2293. John Daughish, Great Malvern—An improved method of making bread.  
2295. James Begg, Glasgow—Improvements in preparing and bleaching textile fabrics and materials.  
2297. John Paterson, Linnithgow, N.B.—Improvements in the manufacture of paper.  
2299. Roger George Salter, Alington, Devon—A method of an apparatus for expediting the stamping or marking of letters, papers, labels, and documents, and improvements in and additions to stamping and marking instruments or apparatus, or in connection therewith.  
2301. Charles Durand Gardiasal, 10, Bedford-street, Strand—An improved construction of pump. (A communication.)  
2303. Edward Wilcox, Harmston, Lincolnshire—Improvements in pumps.  
Dated October 2nd, 1856.  
2305. Edwin Haddon and Joseph Henry, Stockport—Improvements in looms for weaving, and in machinery for communicating motion to looms and other machines.  
2307. Joseph Kershaw, Salford—Certain improvements in machinery or apparatus for cutting or producing the pile of plain or figured velvets or other pile-cut goods or fabrics.  
2309. Daniel Desmond, Upper Thames-street—Improvements in vessels and apparatus for storing, improving, and discharging liquids.  
2311. Robert Edmeston, Bradford—Improvements in looms for weaving.  
2312. Charles Goodyear, Leicester-square—Improvements in securing the openings of air-tight and other bags and packages.

*Dated 3rd October, 1856.*

2315. Peter Armand le Comte de Fontenemoreau, 4, South-street, Finsbury—Improvements in the construction of roofs of buildings, which improvements are applicable to the construction of arches of bridges. (A communication.)
2317. William Johnson, 47, Lincoln's-inn-fields—Improvements in the treatment, preparation, or manufacture of sheet caoutchouc, and in the combination thereof with cloth and other fabrics. (A communication.)
2319. George Fergusson Wilson and Alexander Isaac Austen, Belmont, Vauxhall—Improvements in the manufacture of soap.
2323. James Allen, Castle-place, Castle-street, Canterbury—Improvements in coats.
2325. Colin Farquharson and William Grimshaw, Mitcham—Improvements in apparatus for indicating and regulating the pressure of steam in boilers.

*Dated 4th October, 1856.*

2327. Alexis Picard, 39, Rue de l'Echiquier, Paris—An improved tobacco pipe.
2329. Walmsley Preston, Over Darwen, Lancashire—Improved machinery to be used in the manufacture of paper hangings.
2331. Joseph Betteley, Liverpool—Improvements in the manufacture of iron for knees for ships or other purposes.

*Dated 6th October, 1856.*

2334. Herbert Mackworth, Clifton—Improvements in the separation and treatment of mineral substances, and in coking, and in apparatus connected therewith.
2336. Victor Avril, Paris—Improvements in the manufacture of iron and steel.

*Dated 7th October, 1856.*

2338. Robert Hazard, 1, Thanet-place, Strand—An improved apparatus for intercepting the smoke and heated gases in its passage from boilers, stoves, furnaces, and kilns, to the chimney, and thereby extracting a portion of its heat, which is made available for drying and warming purposes.
2340. Ogletorpe Wakelin Barratt, Birmingham—Improvements in the dyeing or staining and ornamenting of articles of pearl, bone, and vegetable ivory.
2342. Smith Bottomley, Bradford, and James William Crossley, Brighouse, York—Improvements in the manufacture of pile or nap fabrics.
2344. William Wilkinson, Nottingham—Improvements in castors in the legs of tables, chairs, pianofortes, and other articles of furniture, and in apparatus for perforating castor wheels, which is also applicable to the perforating of glass articles generally.
2346. Joseph Bunnett, Deptford—Improvements in the manufacture of metal sash-bars, columns, and mouldings, for building and decorative purposes, and for a method of protecting the same or other articles from oxidation.
2348. George Fergusson Wilson, Belmont, Vauxhall—An improvement in the manufacture of rosin oil.

*Dated 8th October, 1856.*

2350. William Ward, Warrington—An improved manufacture of woven fabric.
2352. Francis Whitehead, Crayford, Kent—A method of and apparatus for producing devices in or on wood, leather, and other similar substances, whether for ornamenting the same or for the production of printing and embossing surfaces therefrom.
2354. William Bradford, Manchester—Improvements in the arrangement of gas burners for lighting and ventilating.
2356. Daniel Foxwell, Manchester—An improved mode or method of consuming smoke and economising fuel thereby.
2360. Henry Watson and John Dixon, High Bridge Works, Newcastle-on-Tyne—Improvements in cocks and valves.
2362. Francois Julien, 4, Trafalgar-square—Improvements in ordnance or cannon.

*Dated 9th October, 1856.*

2364. Thomas King, Spitalfields—An improved continuous compressing machine.
2366. George Hallen Cottam and Henry Richard Cottam, St. Pancras Iron Works, Old St. Pancras-road—An improvement in the manufacture of iron hurdles.
2368. William Nairne, Aberdalgie, near Perth—Certain improvements in the machinery for preparing flax, tow, and other fibrous substances.
2372. James Saul Hendy, Essex-street, Strand—Improvements in fire stoves or grates used for domestic purposes.

*Dated 10th October, 1856.*

2376. William Johnson, 47, Lincoln's-inn-fields—Improvements in railway brakes. (A communication.)
2378. Frederick Albert Gatty, Accrington—Certain improvements in dyeing.

2380. William Rennie, jun., Lagan Foundry, Belfast—Improvements in the condensing apparatus of steam-engines.

*Dated 11th October, 1856.*

2384. William Caswell Watson, New York—Improvements in sewing machines.
2386. George Heppell, Uttoxeter, Stafford—Improvements in ventilating mines and other like places.
2388. Alfred Vincent Newton, 66, Chancery-lane—A new gaseous liquid to be used in generating motive power. (A communication.)
2390. Gustav Scheurmann, Newgate-street—Improvements in printing music when type is employed.

*Dated 13th October, 1856.*

2392. George Elliott, Newcastle-upon-Tyne—Improvements in the production of oxides of manganese.
2394. William and Jacob Todd, Heywood, Lancaster—Certain improvements in power looms for weaving.
2396. Claude Eugene Mony, Paris—An improved mode of transmitting motive power.
2398. John Roscow, Radcliff, Lancaster—Certain improvements in machinery or apparatus for cutting or rasping dye woods.

*Dated 14th October, 1856.*

2400. Richard Sumner, Droylesden, Lancaster—Certain improvements in power looms for weaving.
2402. Samuel Bremner, Newcastle-upon-Tyne—Improvements in pouches or envelopes, and in machinery or apparatus for manufacturing or producing the same.
2404. Thomas Stokes Cressey, High-street, Homerton—Improvements in machinery for cutting, hollowing, and backing staves.

*Dated 15th October, 1856.*

2410. Bennett Johns Heywood, Hawley-road, Camden town—Improvements in valves for inflating air-tight bags, cushions, and other similar articles, and for drawing off liquids.
2412. John Palmer, Stockton-on-Tees, Durham—Improved machinery for separating different kinds or qualities of seed and grain from each other.

## INVENTIONS WITH COMPLETE SPECIFICATION FILED.

2382. Timothy Gilbert, Massachusetts, U.S.—An improved pianoforte action or string-sounding mechanism. (A communication.)—10th October, 1856.
2407. Joseph Henry George Wells, 45, Essex-street, Strand—Improvements in windlasses. (A communication.)—15th October, 1856.

## WEEKLY LIST OF PATENTS SEALED.

*Sealed October 24th, 1856.*

980. Alex. Southwood Stocker.  
881. Abel Desiré Schratz.  
1000. Edmund Topham.  
1034. Richard Archibald Brooman.  
1037. Augustus Smith.  
1058. Isaac Holden.  
1068. Richard Archibald Brooman.  
1083. Conrad William Finzel, William Needham, and John Barton.  
1084. Richard Archibald Brooman.  
1085. Alexander Alliot.  
1102. Richard Archibald Brooman.  
1103. Richard Archibald Brooman.  
1104. Fred. Richard Laurence.  
1185. John Wilkes, Thos. Wilkes, and Gilbert Wilkes.  
1206. Alex. Allan and Thomas Hunt.  
1258. William Edward Newton.
1365. John Henry Johnson.  
1498. James Platt and John Whitehead.  
1530. Samuel Jabez Goode.  
1572. Robert Luke Howard.  
1868. John Woodman.  
1958. George James Farmer.  
*Sealed October 28th, 1856.*  
1011. William Denny Ruck.  
1015. Thomas Greenshields.  
1018. Isaac Abraham Boss.  
1024. Joseph Rigby.  
1025. LouisJean Baptiste Manery.  
1026. Wright Jones.  
1038. Samuel Hunter.  
1044. Alexander Gordon.  
1050. Peter Armand le Comte de Fontaine-moreau.  
1060. William Gregory.  
1363. Charles William Siemens.  
1404. Servans de Jong.  
1615. David Fisher.  
1711. William Papineau.  
1873. Diederich Fehrman.  
1903. William Morgan.

## PATENTS ON WHICH THE THIRD YEAR'S STAMP DUTY HAS BEEN PAID.

*October 21st.*

2610. Edward Gregson Banner.

*October 22nd.*

2463. Alfred Vincent Newton.

2493. Joseph Gurney.

2526. John Whitehead and Thomas Whitehead.

2544. James Howard.

*October 24th.*

2587. Alfred Vincent Newton.

*October 25th.*

2466. Charles Goodyear.

2473. Edward Joseph Hughes.

*October 26th.*

2476. Patrick Benignus O'Neill.  
2486. George Edward Dering.

## WEEKLY LIST OF DESIGNS FOR ARTICLES OF UTILITY REGISTERED.

No. in the Register.	Date of Registration.	Title.	Proprietors' Name.	Address.
3891	Oct. 17.	Door Spring .....	Thomas Pemberton and Sons.	Birmingham.
3892	" 17.	Improved Corn Shovel .....	Smith and England .....	Wollaston Works, Stourbridge.
3893	" 22.	Chimney Top .....	Thomas Large Hemley .....	Caine, Wilts.
3894	" 23.	The Ladle Pickle Fork .....	Alfred John Marriott .....	237, Oxford-street.